

Figure 15 C is a graphical representation of circumferential and radial stress distributions of the model in Figure 15A under a load;

Figure 15D is a graphical representation of axial strain over the length of the model in Figure 15A under a load;

5        Figure 16 is a graphical representation of circumferential and radial stresses in the dynamically wound sheet shown in Figure 15A, for a slower loading rate case;

Figure 17 is a graphical representation of circumferential strain over the length of the model in Figure 15A for fast and slow loading rate dynamic winding cases;

10        Figure 18 is a graphical representation of a comparison of circumferential and radial stresses obtained using the a finite element model and an analytical model, for 10 wraps at different loading rates;

Figure 19A is a diagrammatical representation of a finite element mesh for a concentric layer model of a wound buffer tube;

15        Figure 19B is a graphical representation of radial and circumferential stress distributions for the concentric layer model in Figure 19A;

Figure 19C is a graphical representation of radial and circumferential stress and strain distributions through the radius of the concentric layer model shown in Figure 19A;

Figure 19D is a graphical representation of circumferential strain and EFL distribution for the model shown in Figure 19A under constant tension during manufacture;

20        Figure 20 is a graphical representation of radial and circumferential stress and strain distributions for different values of elastic modulus for the model shown in Figure 19A;

Figure 21 is a graphical representation of radial and circumferential stress and strain distributions for different core diameters of the model shown in Figure 19A;

Figure 22 is a graphical representation of radial and circumferential stress and strain distributions for different values of constant tension applied to the model shown in Figure 19A;

Figure 23 is a graphical representation of radial and circumferential stress and strain distributions for different levels of linearly decaying tension applied to the model showing in Figure 19A;

Figure 24 is a graphical representation of radial and circumferential stress and strain distributions for different types of compliant layers on the core surface in the model shown in Figure 19A;

Figure 25A is a graphical representation of radial and circumferential stress and strain distributions for different cases of distributed compliant layers in the model shown in Figure 19A;

Figure 25B is a graphical representation of radial and circumferential stress and strain distributions for different cases of distributed stiff layers in the model shown in Figure 19A;

Figure 25C is a graphical representation of radial and circumferential stress and strain distributions for different cases of internal pressure in the model shown in Figure 19A;

Figure 26A is a graphical representation of radial and circumferential stress and strain distributions for a compliant layer combined with linearly decaying tension in the model shown in Figure 19A;

Figure 26B is a graphical representation of radial and circumferential stress and strain distributions for a compliant layer combined with linearly decaying tension with varying values for Young's Modulus of the model shown in Figure 19A;

Figure 27A is a graphical representation of tension curves for different values of the coefficient  $\alpha$  in the model shown in Figure 19A;

Figure 27B is a graphical representation of radial and circumferential stress and strain distributions for a compliant layer combined with linearly and non-linearly decaying tensions  
5 in the model shown in Figure 19A;

Figure 28 is a graphical representation of radial and circumferential stresses obtained from a finite element layer model and an analytical model;

Figure 29 is a diagrammatical representation of buffer tube packing on a reel;

Figure 30 is a graphical representation of EFL distributions obtained from a finite  
10 element analysis and through experimentation for a constant tension;

Figure 31 is a graphical representation of EFL distributions obtained from a finite element analysis and through experimentation for a lower constant tension than that applied in Figure 30;

Figure 32A is a graphical representation of EFL distributions obtained from a finite  
15 element analysis and through experimentation for two different cases of constant tension;

Figure 32B is a graphical representation of EFL distribution obtained from a finite element analysis and through experimentation for the case of a compliant layer on the reel surface and variable tension applied to a buffer tube;

Figure 33 is a graphical representation of the distribution of EFL in three different  
20 buffer tubes;

Figure 34 is a graphical representation of variation of EFL in two buffer tubes, wherein one tube is reeled without a pad on the reel, and at constant take-up tension, and one tube is reeled with a monotonically reduced take-up tension on a reel with a thick soft pad;